

# RETINAL IMAGING FFA VS. OCT IN MYOPIC FUNDUS

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## EPIDEMIOLOGY OF MYOPIA

### Prevalence

- 1.6 billion out of 7.7 billion people (~ 21%)
- 2.5 billion in 2020; (~ 27-33% high myopia)
- East Asian ancestry

Ruiz-Medrano et al. Prog Retin Eye Res 2018

## HIGH MYOPIA VS. PATHOLOGIC MYOPIA

### High myopia

- Spherical error  $> 6.0$  D/ocular AXL  $\geq 26$  mm

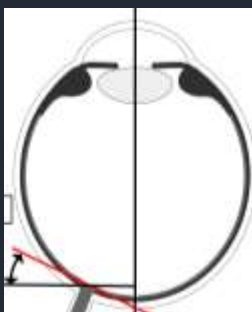
### Pathologic myopia

- AXL elongation + posterior staphyloma + ocular structural changes (sclera-choroid-retina)
- 4th most common cause of *irreversible* blindness in developed countries

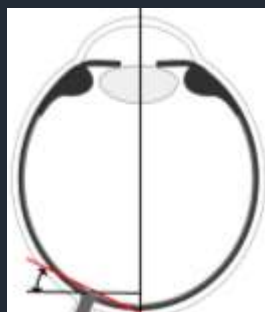
Ruiz-Medrano et al. Prog Retin Eye Res 2018

## PATHOGENESIS OF PATHOLOGIC MYOPIA

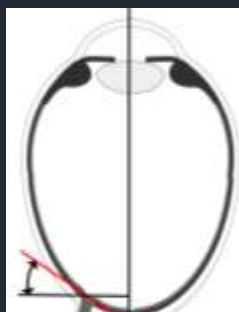
### Axial elongation



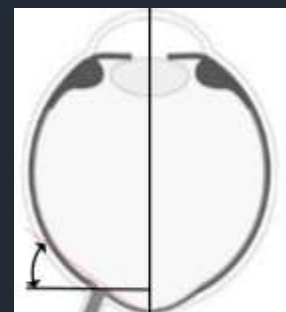
Normal



Proportional



Excessive

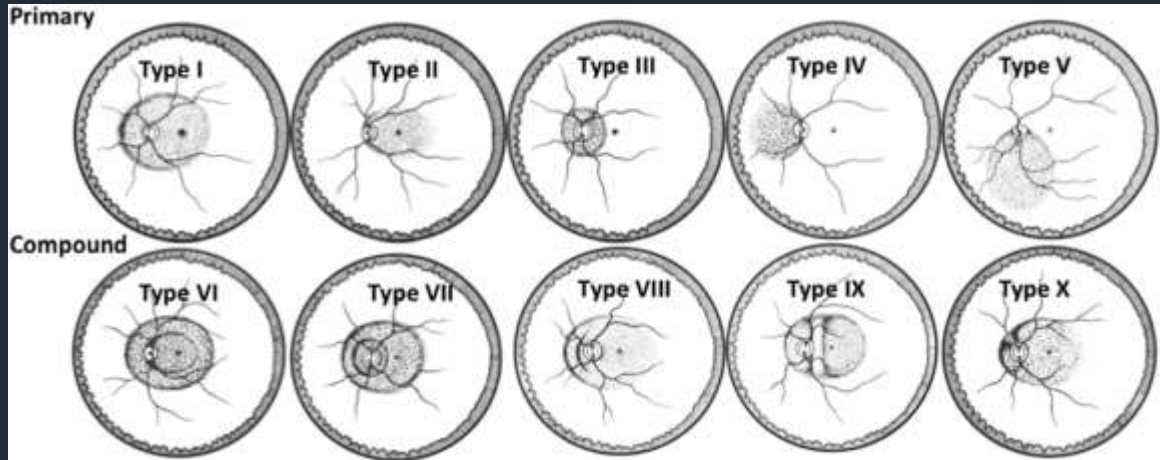


Staphyloma

Yamashita et al. PLoS ONE 2017

## PATHOGENESIS OF PATHOLOGIC MYOPIA

### Curtin classification of staphylomas



Curtin. Trans Am Ophthalmol Soc 1977

## FEATURES OF PATHOLOGIC MYOPIA



Photos: Columbia Univ./Richard et al. Fluorescein & ICG angiography 1998

## PRECURSORS OF MYOPIC CNV

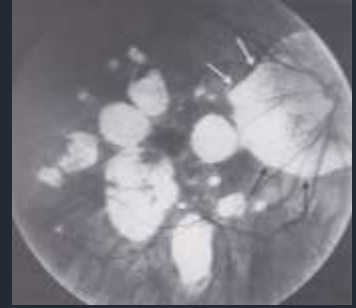
Color



Color



Red-free



Photos: Columbia Univ./ASRS/ Richard et al. Fluorescein & ICG angiography 1998

## PRECURSORS OF MYOPIC CNV

Red-free

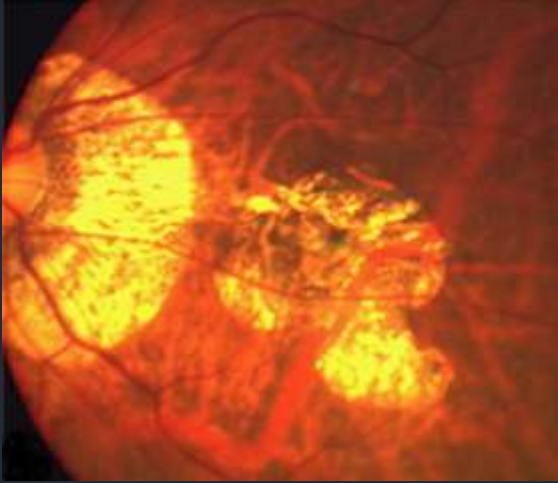


Red-free



Photos: Richard et al. Fluorescein & ICG angiography 1998

## FFA FEATURES OF PATHOLOGIC MYOPIA



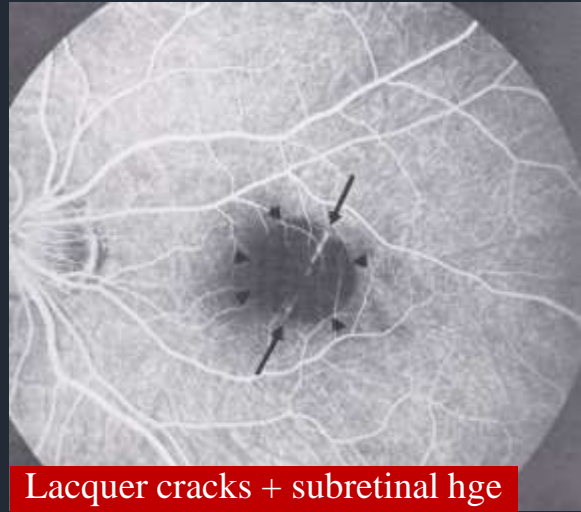
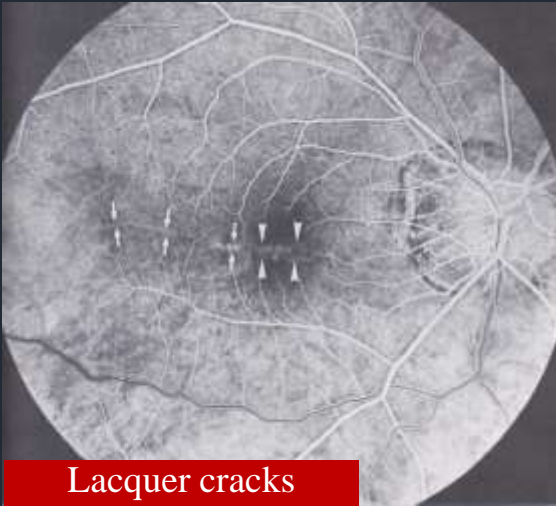
Photos: Neelam et al. Prog Ret Eye Res 2012

## FFA FEATURES OF PATHOLOGIC MYOPIA



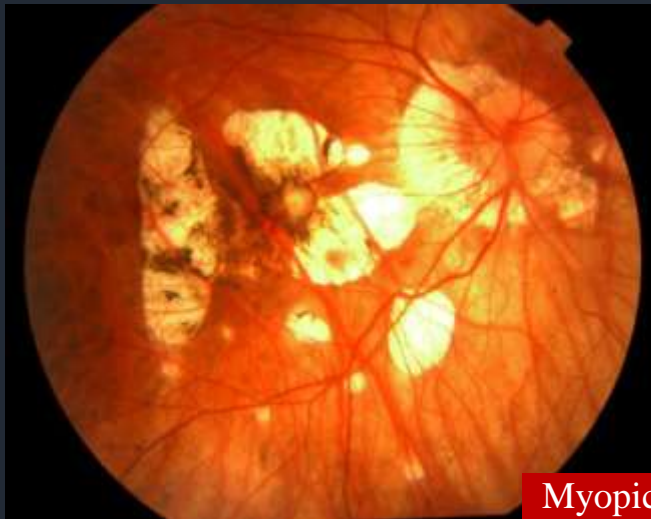
Photos: Richard et al. Fluorescein & ICG angiography 1998

## FFA FEATURES OF PATHOLOGIC MYOPIA



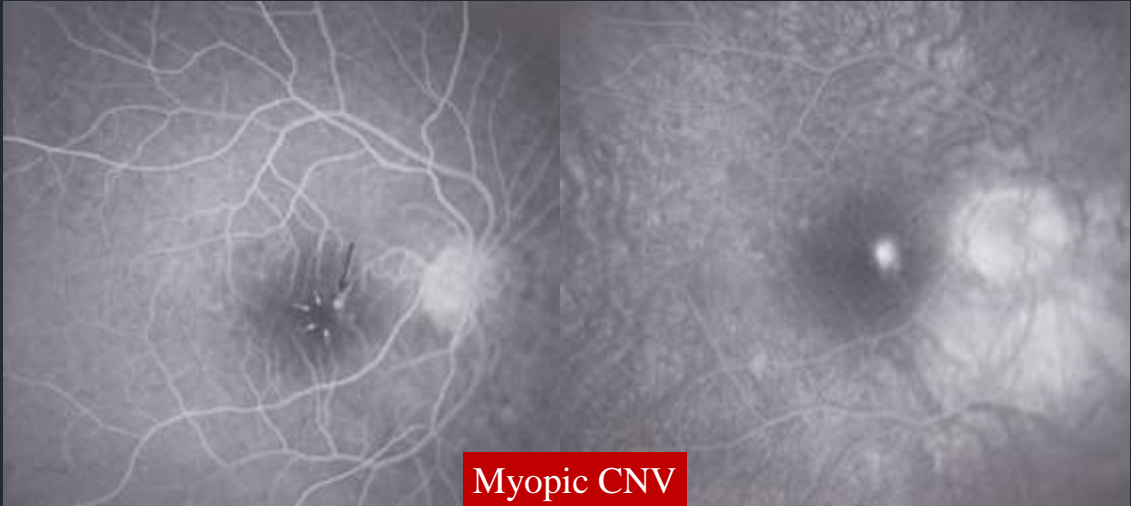
Photos: Richard et al. Fluorescein & ICG angiography 1998

## FFA FEATURES OF PATHOLOGIC MYOPIA



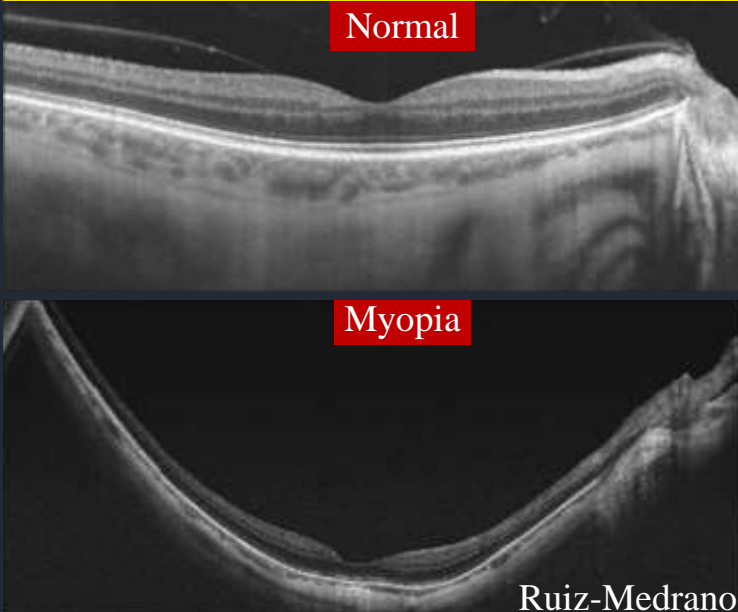
Photos: Richard et al. Fluorescein & ICG angiography 1998

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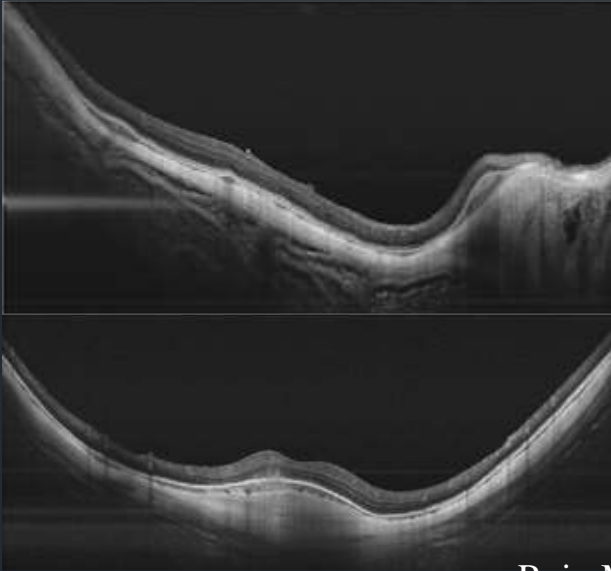
Photos: Richard et al. Fluorescein & ICG angiography 1998

## OCT FEATURES OF PATHOLOGIC MYOPIA



Ruiz-Medrano et al. Prog Retin Eye Res 2018

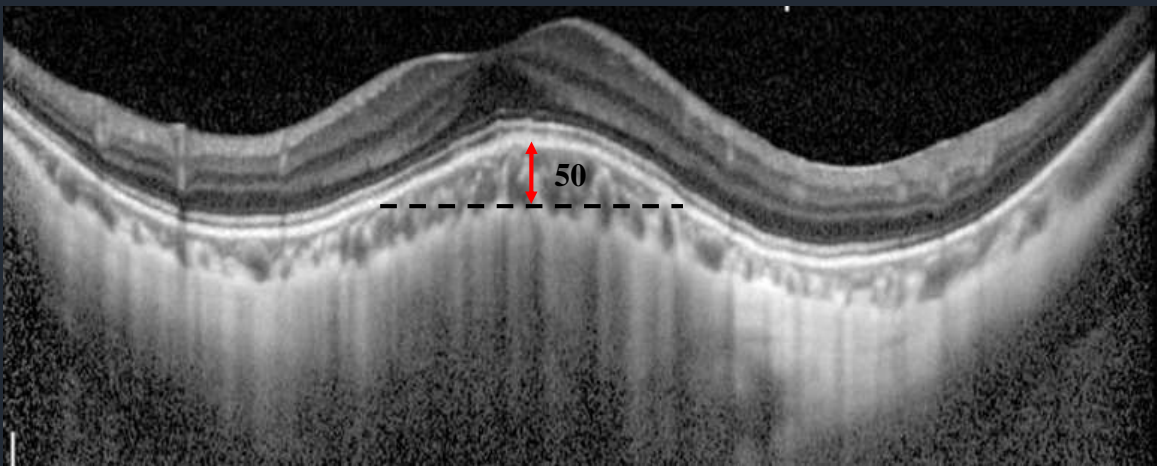
## OCT FEATURES OF PATHOLOGIC MYOPIA



Dome – shaped macula

Ruiz-Medrano et al. Prog Retin Eye Res 2018

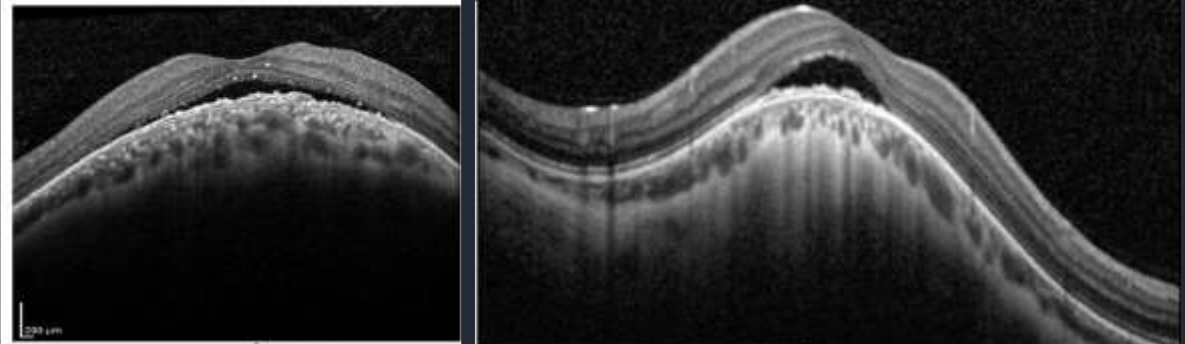
## OCT FEATURES OF PATHOLOGIC MYOPIA



Zhao et al. BMJ Open 2018



## OCT FEATURES OF PATHOLOGIC MYOPIA

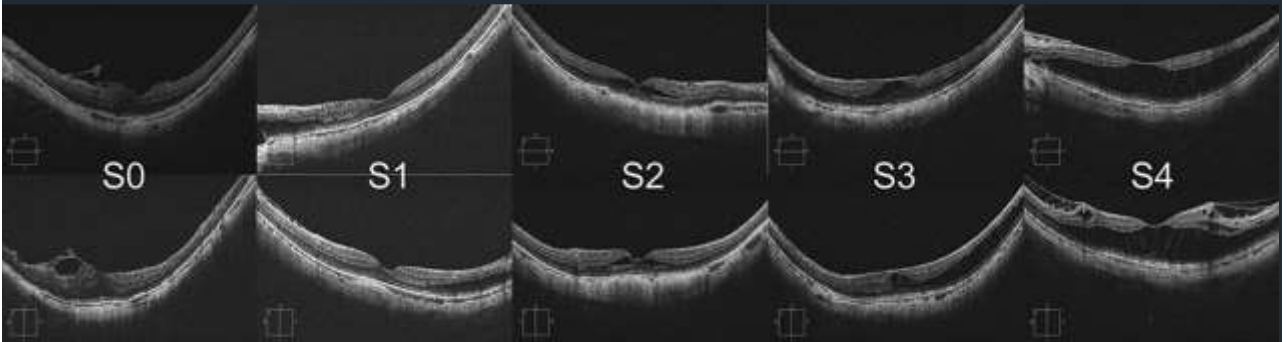


Dome – Shaped Macula + Serous RD

Ruiz-Medrano et al. Prog Retin Eye Res 2018/Viola et al. Am J Ophthalmol 2015

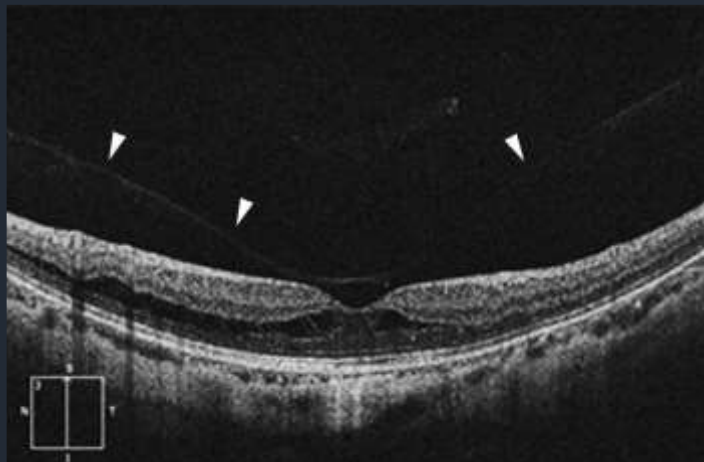
## OCT FEATURES OF PATHOLOGIC MYOPIA

### Myopic Traction Maculopathy - MTM



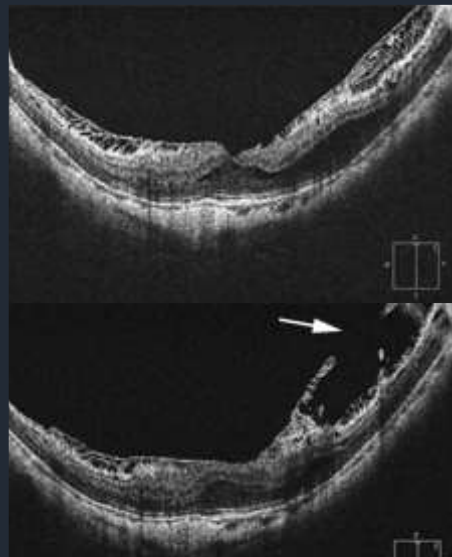
Shimada et al. Am J Ophthalmol 2013

## OCT FEATURES OF PATHOLOGIC MYOPIA



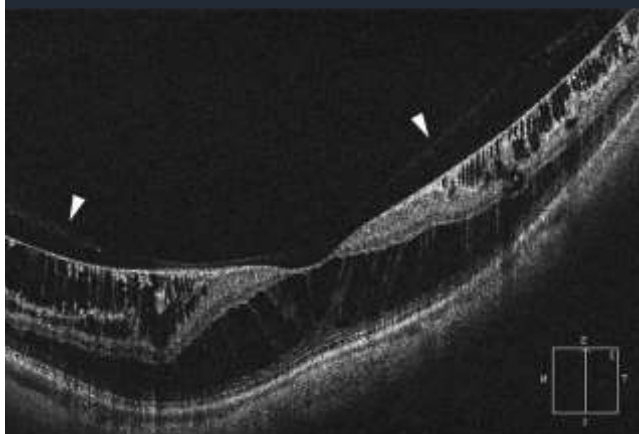
S3 MTM – Partial PVD

Shimada et al. Am J Ophthalmol 2013

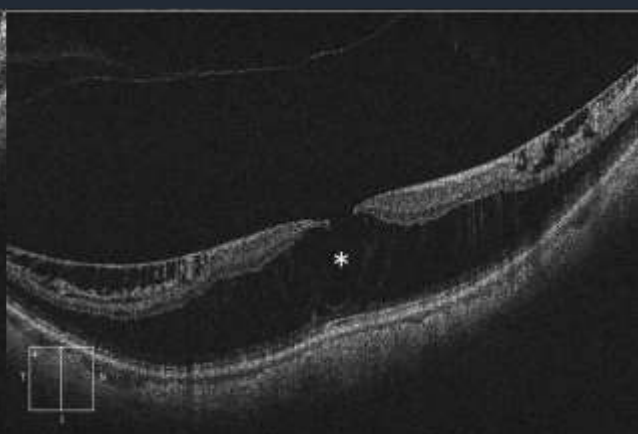


S3 MTM – ILM Disruption

## OCT FEATURES OF PATHOLOGIC MYOPIA



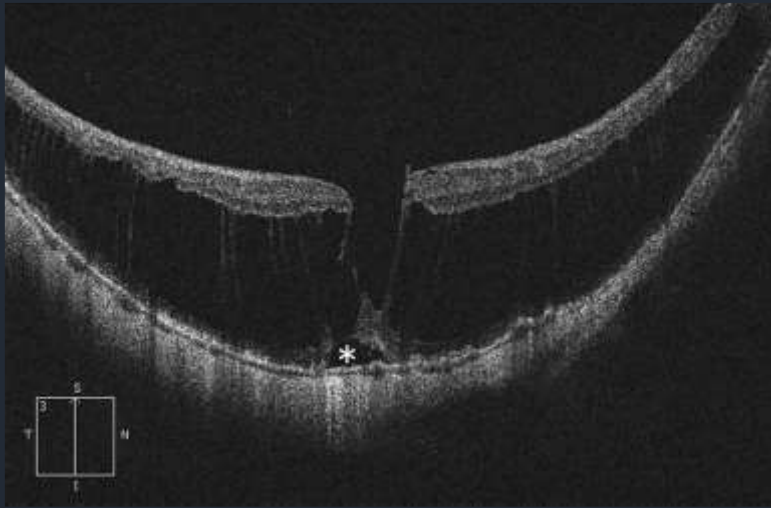
S4 MTM – Macular Schisis



S4 MTM – Inner lamellar hole

Shimada et al. Am J Ophthalmol 2013

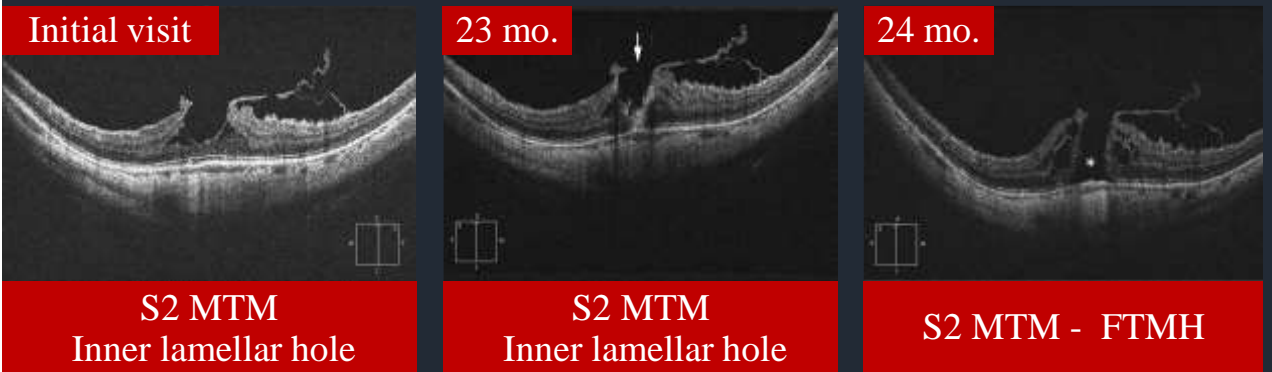
# OCT FEATURES OF PATHOLOGIC MYOPIA



S4 MTM – Inner & outer lamellar holes + foveal RD

Shimada et al. Am J Ophthalmol 2013

# OCT FEATURES OF PATHOLOGIC MYOPIA



Initial visit

23 mo.

24 mo.

S2 MTM  
Inner lamellar hole

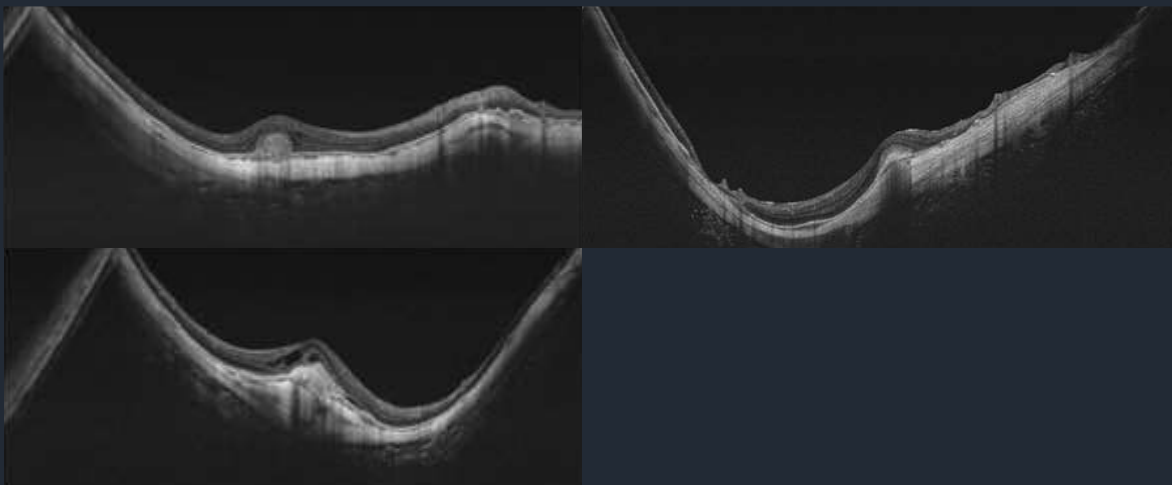
S2 MTM  
Inner lamellar hole

S2 MTM - FTMH

Shimada et al. Am J Ophthalmol 2013

## OCT FEATURES OF PATHOLOGIC MYOPIA

### Myopic CNV



Ruiz-Medrano et al. Prog Retin Eye Res 2018

THANK YOU